DiVesta Civil Engineering Associates, Inc.

March 31, 2020

Mr. Jeremy Ginsberg, AICP
Planning Director
Town of Darien
2 Renshaw Road
Darien, CT 06820

Re: Oresman Subdivision – 49 Sunswyck Road, Darien, CT

Dear Mr. Ginsberg:

The following is offered in response to review comments prepared by Mr. Joseph Canas, P.E. of Tighe & Bond, March 27, 2020, regarding the above referenced property.

A. Stormwater Management:
1. Performed scour hole was added to the site plan as well as a detail.
2. There is to be no patio around the pool on lot # 2.
3. The volume below the outlet inverts of the detention systems is the water quality volume.
4. Junction box # 1 – the footing drain and the site drainage pipe are separated entering the junction box. Junction box # 2 - the sump pump and the roof leader pipe enter the junction box separately.
5. Please see the attached infiltration system drawdown calculations for all three detention basins. Detention basin # 1aa was doubled in size to decrease the drawdown time to within 72 hours.
6. Cleanouts at the bends of the 6-inch PVC pipes are not warranted because the pipes are carrying clean water with little to no debris that will cause a blockage. Runoff has to pass through a hood and a two foot sump in the various catch basins before entering the detention systems.
7. Maintenance measures have been revised and added to the site plan.
8. Level spreaders were added to the outlet discharges on a slope.

B. Sediment and Erosion Controls
1. A second row of silt fence was added in the areas that are upstream of wetlands.
2. Silt sack was added to the two existing catch basins on Sunswyck Road.
3. A note has been added to the areas in question to add an erosion control blanket on the slope once the area has been final graded.
4. A note was added to the site plan stating an arborist will be consulted to determine the best method to protect the 48-inch oak during the construction of the retaining wall.
It is the intention to save the 48-inch oak tree. The 36-inch maple tree will be removed on lot # 1. The 18-inch hickory and 15-inch locust will be removed on lot # 2.

C. Earth Filling and Regrading
   1. Plantings could be planted in this area to reduce potential erosion concerns.
   2. At this time a planting plan has not been prepared.

We trust that we satisfactorily addressed the comments from Mr. Canas, PE dated March 27, 2020.

Very Truly Yours,
DiVesta Civil Engineering Associates, Inc.

Douglas DiVesta

Douglas DiVesta, PE
President

DD/dd
20-015 – ltr Ginsberg 03-30-20

Enc.

CC: J. Pagliarulo
     J. Canas, PE

Infiltration System Drawdown Calculations

Oresman Subdivision
49 Sunswyck Road
Darien, Connecticut
Dated: 03/30-20

Detention System
Source: Town of Greenwich Drainage Manual, Appendix B

The infiltration system will consist of plastic chamber surrounded with crushed stone.

Storage in Detention Basin # 1 – Subcatchment # 1, Lot # 1:

$Time_{drawdown}$ = DV / (K)(A)
Where:
DV = Design Volume $\quad$ = 98 ft³ (Refer to WQV")
K = Infiltration Rate $\quad$ = .09 in/hr (HSG D – Clay Loam – table B-2)
A = Bottom Area $\quad$ = 1065 sf

$Time_{drawdown}$ = (98 ft³) / [(.09 in/hr) x (1065 ft²)] = **12.27 hr**

The proposed infiltration system will drawdown within 72 hours.

Infiltration System Drawdown Calculations

Oresman Subdivision
49 Sunswyck Road
Darien, Connecticut
Dated: 03/30-20

Detention System

Source: Town of Greenwich Drainage Manual, Appendix B

The infiltration system will consist of plastic chamber surrounded with crushed stone.

Storage in Detention Basin # 1aa – Subcatchment # 1a , Lot # 1:

$Time_{drawdown}$ = DV / (K)(A)
Where:
DV = Design Volume $\quad$ = 231 ft^3 (Refer to WQV")
K = Infiltration Rate $\quad$ = .09 in/hr (HSG D – Clay Loam – table B-2)
A = Bottom Area $\quad$ = 467 sf

$Time_{drawdown}$ = (231 ft^3) / [(.09 in/hr) x (467 ft^2)] = **65.9 hr**

The proposed infiltration system will drawdown within 72 hours.

Infiltration System Drawdown Calculations

Oresman Subdivision
49 Sunswyck Road
Darien, Connecticut
Dated: 03/30-20

Detention System
Source: Town of Greenwich Drainage Manual, Appendix B

The infiltration system will consist of plastic chamber surrounded with crushed stone.

<u>Storage in Detention Basin # 1a – Subcatchments # 5 & #6 , Lot # 2:</u>

$Time_{drawdown}$ = DV / (K)(A)
Where:
DV = Design Volume   = 331 ft^3 (Refer to WQV")
K = Infiltration Rate   = .09 in/hr (HSG D – Clay Loam – table B-2)
A = Bottom Area   = 1278 sf

$Time_{drawdown}$ = (331 ft^3) / [(.09 in/hr) x (1278 ft^2)] = **31.6 hr**

The proposed infiltration system will drawdown within 72 hours.

Table B-1. Requirements for Determining Field Infiltration Rates

Infiltration Design Method	NRCS Hydrologic Soil Groups			
	A	B	C	D
Static Method	Soil Textural Analysis	Soil Textural Analysis	Saturated Hydraulic Conductivity Testing	Infiltration Not Allowed
Simple Dynamic Method	Soil Textural Analysis	Soil Textural Analysis	Saturated Hydraulic Conductivity Testing	Infiltration Not Allowed
Dynamic Field Method	Saturated Hydraulic Conductivity Testing	Saturated Hydraulic Conductivity Testing	Saturated Hydraulic Conductivity Testing	Infiltration Not Allowed

Table B-2. Default (Rawls) Infiltration Rates

Texture Class	NRCS Hydrologic Soil Group (HSG)	Infiltration Rate Inches/Hour
Sand	A	8.27
Loamy Sand	A	2.41
Sandy Loam	B	1.02
Loam	B	0.52
Silt Loam	C	0.27
Sandy Clay Loam	C	0.17
Clay Loam	D	0.09
Silty Clay Loam	D	0.06
Sandy Clay	D	0.05
Silty Clay	D	0.04
Clay	D	0.02

Source: Rawls, Brakensiek and Saxton, 1982.

- The slowest of the Hydrologic Soil Groups determined to exist at the point where infiltration is proposed shall be used.
  - *Example:* Two samples are taken at a proposed infiltration bioretention system in the actual soil layer where recharge is proposed. One sample indicates sandy soils. The second sample indicates a sandy loam soil. The default infiltration rate used for the design analysis must use the sandy loam rate and not the sandy soil rate. Soils must not be composited for purposes of the soil textural analysis.

- When the "Dynamic Field" method is used to size the infiltration system (regardless of Hydrologic Soil Group) or infiltration is proposed within Hydrologic Soil Group C soils